

AA0030270

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

236806 PHOTO-ELECTRIC CONTROL FOR INDUCTION HEATING  
of metals by the proposed method improves

control accuracy, reduces waste, and ensures good reproduceability in high-frequency heat-treatment under conditions of random variations in heating rate. The desired temperature process in induction heating is well understood, but the cycle can be distorted by random errors (voltage variations, uneven distribution of heat, etc.) The proposal envisages a temperature sensor combined with a delay element in the form, for example, of an inductive amplifier operating valve and relay circuitry to compare the amplifier output with a reference voltage set to correspond to some chosen temperature. The control is effective for slow heating rates (furnace heating) and with rates proper to induction heating is responsive to some higher temperature, the more rapid the heating, thus compensating for the rate. 6.2.67 as 1131186/18-10. P.I. RUSIN et alia. (1.7.69; Bul 7/3.2.69. Class 421. Int. Cl. G 01k.

AUTHORS: P.I. Rusin, A.I. Smolyaninov, V.M. Shapkin,  
V.N. Pustovyt

19690162

USSR

UDC 603.295.5'293'296

MIKHEYEV, V. S., PUSTOVOYTOVA, T. G., SOKOLOV, V. S., and SHCHERBAV, G. D.,  
Moscow

"Strength and Plasticity of Ti-Nb-Zr Alloys at  $-196$  and  $+20^{\circ}$  C"

Moscow, Izvestiya Akademii Nauk SSSR, Metallurgy, No 4, Jul-Aug 78, pp 171-173

Abstract: The mechanical properties of Ti-Zr-Nb alloys with an increased content of Zr and Nb were investigated at  $-196^{\circ}$  C and  $+20^{\circ}$  C on specimens with a constant relation of Ti/Zr = 9/1, Nb contents between 1 and 50 at%, and Zr contents up to 10 at%. The alloys were composed of Ti, brand TG-110, with admixtures of Fe, Si, C, Cl, N<sub>2</sub>, H<sub>2</sub>, and the components iodine Zr and industrial Nb. The effect of Nb on the mechanical characteristics of the alloys at  $-196^{\circ}$  C and  $+20^{\circ}$  C shows a notable increase in strength and yield properties in the domains of  $\alpha$  and  $\beta$  solid solutions. The most different values of strength and yield properties at  $-196^{\circ}$  C were observed on alloys with structures of  $\alpha$  and  $(\alpha+\beta)$  solid solutions at 20 at% Nb; similar values were observed on the microstructures of  $\beta$  solid solutions which showed a brittle failure at tensile tests. Titanium alloys containing up to 3 at% of Nb and 9.9-9.7 at% Zr, with a tensile strength  $\sigma = 114-129$  kg/mm<sup>2</sup> and  $\delta = 9-10\%$ , have the best combination of strength and plasticity.

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1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EFFECT OF DEHYDRATION ON NATURAL GROWTH SUBSTANCES IN THE TISSUES  
OF THE LEAF SHEDDING MOSS NECKERA CRISPA -U-  
AUTHOR--PUSTOVYIDVA, T.N.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIOLOGIYA RASTENIY, 1970, VOL 17, NR 3, PP 575-579  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DEHYDRATION, PLANT GROWTH REGULATOR, PLANT CHEMISTRY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/1137 STEP NO--UR/0326/70/017/003/0575/0579  
CIRC ACCESSION NO--AP0123125  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123125

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MOSS PLANTS *N. CRISPA* L. (A POIKILOXEROPHYTE) WERE SUBJECTED TO WILTING CONDITIONS IN THE LABORATORY. VARIATION IN THE GROWTH SUBSTANCE CONTENT IN EXTRACTS FROM THE MOSS TISSUE OF VARIOUS DEGREE OF DEHYDRATION WAS STUDIED BY MEANS OF PAPER CHROMATOGRAPHY AND A BIOTEST (WHEAT COLEOPTILE SEGMENTS). THREE INHIBITORS AND A GROWTH STIMULATOR WERE DETECTED IN GROWING PLANTS. A LOSS OF WATER OF 26.5 PERCENT RESULTED IN A CERTAIN CHANGE IN ACTIVITY OF THE GROWTH STIMULATOR WITH AN R SUBF BETWEEN 0.59 AND 0.70 AND IN THE ACCUMULATION OF A GROWTH STIMULATOR WITH R SUBF 0.70-0.85 (FOR A 15 PERCENT ACETIC ACID SOLUTION). FOUR GROWTH INHIBITORS AND ONE STIMULATOR WERE FOUND IN EXTRACTS FROM AIR DRY MOSS PLANTS. THE ACTIVITY OF THE GROWTH STIMULATORS AND INHIBITORS FROM THE MOSS PLANTS IS NOT HIGH. PHENOLIC SUBSTANCES WITH R SUBF OF 0.02, 0.1 AND 0.78 ARE FOUND IN THE EXTRACTS. A SLIGHT ACCUMULATION OF GROWTH STIMULATORS IS OBSERVED IN DEHYDRATED *N. CRISPA*; THIS CONTRASTS TO MESOPHYTE PLANTS IN WHICH DROUGHT INDUCES THE FORMATION OF GROWTH INHIBITORS. IT IS SUGGESTED THAT A CERTAIN ACCUMULATION OF GROWTH STIMULATORS WHICH OCCURS ON DEHYDRATION OF POIKILOXEROPHYTES PROMOTES THE RESTORATION OF GROWTH WHEN FAVORABLE CONDITIONS ARE CREATED.

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UDC 632.95

USSR

PYATHOVA, YU. B., GOLUBEVA, V. A., GOLYSHIN, N. M., ~~ABELENTSEV, V. I.~~ <sup>ABELENTSEV, N. S.</sup>, PUSTOVOYTOVA, V. I.,  
ABELENTSEV, V. I., FEDOSENKO, L. G., VISHNEVSKAYA, A. N.,  
and DVUKHSHERSTOV, M. G.

"Editone"

Khim. sredstva zashchity rast. (Chemical Means of Protecting Plants -- collection of works), Issue 1-M, 1970, pp 129-134 (Referativnyy Zhurnal -- Khimiya, No 10, (II), 1972, Abstract No 10H550 by T. A. Belyayeva)

Translation: Investigation of editone -- 3,3'-ethylene-bis-4,6-dimethyl-  
trahydro-1,3,5-thiadiazin-2-one (I) -- in laboratory conditions in vitro  
showed that I is equivalent in fungicidal property to Phygon and offers no  
threat to green plants. The effectiveness of I in countering apple scab,  
grapevine mildew, cherry-plum Clasterosporium, monilial blight, grey mold  
of cherry trees, and Isarosporium in tomatoes is equal to or exceeds the  
effectiveness of zineb and copper oxychloride (concentration 0.25-0.125%)  
and of Bordeaux mixture in 1% concentration. I is not effective in combatting  
powdery mildew.

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Acc. Nr.:

AN0045469

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Ref. Code: UR 9017

JPRS 49849

Notes on Work of Estonian Astronomers

(Abstract: "Electronics in the Service of Astronomers," by I. Pustyl'nik, Institute of Physics and Astronomy Academy of Sciences Estonian SSR; Tallin, Sovetskaya Estoniya, 16 January 1970. p. 4)

In the recently established Experimental Astrophysics Section of the Institute of Physics and Astronomy Academy of Sciences Estonian SSR (the section is headed by Candidate of Physical and Mathematical Sciences L. Luud) a group of electronics engineers in a special design bureau is successfully working on new instruments for detecting star radiation. The first significant success at the Tyrave Observatory in the field of astronomical instrument making was several years ago when the engineers E. Maazik and R. Koppel (under the direction of U. Veysman) constructed a control panel for a dual telescope and its photoelectric photometers. Theoretically, these photoelectric photometers of the dual telescope can detect in the sky the light of an ordinary electric bulb at a distance equal to that between Moscow and Tartu. They could even determine the intensity of

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this bulb with a high accuracy. Estonian astrophysicists are studying variable supergiants, so-called symbiotic stars, flaring stars and novae. For observing such stars Estonian specialists have constructed a new electric spectrophotometer. In this instrument the light from a star is first broken down into its spectrum and then individual parts of the spectrum are incident on the photocathode of a photomultiplier. The thin light beam from a star is split into several dozen elementary beams and the brightness of each is measured with great accuracy. The entire procedure for measuring the brightness of one spectrum occupies only a few tens of minutes. By comparing the spectra of a star obtained at different times it becomes possible to study nonstationary processes. The first observations with this instrument revealed that the electric spectrophotometer of Tartu Observatory is superior to other Soviet instruments of this class. Work is now proceeding on increasing instrument response by artificial cooling. During the coming year the Tyravere Observatory will receive a 1-1/2-meter AZT-12 telescope which is now in the final stages of completion at the Leningrad Optical-Mechanical Plant. This will be the first of a new series of semiautomatic telescopes which the plant will supply in the coming years to a number of observatories in the country. At Tyravere work is now proceeding on the construction of a tower for the new telescope. The new telescope will be automatically controlled by an electronic computer.

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UR 9017

AUTHOR-- PUSTYL, NIK, I., JUNIOR SCIENCE ASSOCIATE, THE INSTITUTE  
OF PHYSICS AND ASTRONOMY OF THE ESTONIAN ACADEMY OF  
SCIENCES /IPA/, CANDIDATE OF PHYSICAL-MATHEMATICAL  
SCIENCES

TITLE-- ELECTRONICS IN THE SERVICE OF ASTRONOMERS

NEWSPAPER-- SOVETSKAYA ESTONIYA, JANUARY 16, 1970, P 4, COLS 4-7

ABSTRACT-- THE AUTHOR BRIEFLY REVIEWS THE ACTIVITIES OF THE ASTRO-  
PHYSICAL OBSERVATORY AT TYRAVERA, SEVERAL YEARS AGO, ITS ENGINEERS  
E. MAAZIK AND R. KOPPEL DESIGNED PHOTOELECTRIC PHOTOMETERS AND THE  
CONTROL PANEL FOR A DOUBLE TELESCOPE. THE PROJECT WAS DIRECTED BY  
U. VEYSMAN, JUNIOR SCIENCE ASSOCIATE.

YU. IBRUS, JUNIOR SCIENCE ASSOCIATE, SECTION OF THE EXPERIMENTAL  
PHYSICS OF THE IPA, AND L. UTTER, SENIOR ENGINEER, DESIGNED AN  
ELECTRO-SPECTROPHOTOMETER.

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YA. OYASTE, JUNIOR SCIENCE ASSOCIATE, AND R. LAYGO, SENIOR DESIGN ENGINEER, ARE ABOUT TO COMPLETE THE DESIGN OF A SPECTROGRAPH WITH AN ELECTRONIC-OPTICAL CONVERTER, WHICH IS KNOWN AS "OMIKRON".

THE TYRAVERA OBSERVATORY IS SLATED TO RECEIVE THE 1.5 METER AZT-12 TELESCOPE WHEN ITS CONSTRUCTION IS COMPLETED AT THE LENINGRAD OPTICAL-MECHANICAL PLANT.

THE INSTITUTE'S CALCULATIONS ARE MADE IN THE COMPUTER VNIEM-3.

THE SECTION OF EXPERIMENTAL ASTROPHYSICS, WHICH HAS BEEN RECENTLY FORMED AT THE IPA, IS HEADED BY L. LUUD, SENIOR SCIENCE ASSOCIATE, CANDIDATE OF PHYSICAL-MATHEMATICAL SCIENCES.

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1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--KINETICS AND MECHANISM OF HOMOGENEOUS CATALYTIC ACTIVATION OF  
CARBON MONOXIDE IN SOLUTIONS. VII. KINETICS OF CR SUB2 O PRIME2 SUB7  
AUTHOR--(04)--FASHAN, A.B., IKHSANOV, ZH.A., PUSTYLNIKOV, L.M., LUKYANOV,  
A.T.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 401-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--REACTION KINETICS, CHEMICAL REDUCTION, CARBON MONOXIDE,  
CHROMIUM, PLATINUM ELECTRODE, CATALYST ACTIVITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1222 STEP NO--UR/0076/70/044/002/0401/0405  
CIRC ACCESSION NO--AP0128640  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128640

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. HOMOGENEOUS CATALYTIC REON. OF CR SUB2 O. SUB7 PRIME2 WITH CO IN MINERAL AND ORG. ACIDS FOLLOWS THE OVERALL PATTERN CR SUB2 O SUB7 PRIME2 NEGATIVE PLUS 3CO PLUS 3H PRIME POSITIVE EQUALS 2 CR PRIME3POSITIVE PLUS 3 CO SUB2 PLUS 4 H SUB2 O. THE KINETICS OF THIS REACTION IN AQ. SOLNS. OF H SUB2 SO SUB4 WAS STUDIED; AR DILD. CO WAS USED, H SUB2 (POCL SUB4) SERVED AS A CATALYST, AND THE RATES WERE FOLLOWED POTENTIOMETRICALLY. RESULTS REVEALED AN ANOMALOUS DEPENDENCE OF THE DIMENSIONLESS D. OF THE GAS STREAM ON THE DIMENSIONLESS CRITERION OF HATTA, WHEN THE TEMP. AND THE AMT. OF CATALYST WERE CHANGED. THEORETICAL ANAL. WAS ATTEMPTED. RESULTS JUSTIFIED THE ADOPTION OF THE FILM THEORY OF ABSORPTION. EQUATIONS WERE DEVELOPED TO DET. THE CONC. OF THE GAS COMPONENT ALONG THE VERTICAL AXIS OF THE REACTOR. THE PROCEDURE IS BASED ON THE COMPARISON OF THE POTENTIAL OF A PT ELECTRODE AT A GIVEN DEPTH WITH THE VALUE OF THE HATTA NO. FACILITY: KAZ. GOS. UNIV. IM. KIROVA, ALMA-ATA, USSR.

UNCLASSIFIED

USSR

UDC 621.397.61

*P*  
PUSTYNSKIY, I. N., ILIN, A. G.

"Determining the Optimal Frequency Band of a Video Amplifier of Television Measuring Devices"

Vopr. radioelektroniki. Nauchno-tekhn. sb. Tekhn. televideniya (Problems of Radioelectronics. Scientific and Technical Collection. Television Equipment), 1970, vyp. 1, pp 54-63 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G154)

Translation: The optimal frequency band of the video amplifier of television measuring devices is defined by the criterion of minimum dispersion of the random measurement error in the time position of the video pulse front caused by video channel noise.

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Combustion

USSR

UDC 541.124/125

PIKORINOV, G. N., KRAVCHENKO, V. V., KRAVCHENKO, V. V., GAVRILIN, V. A., and  
FRUTKIN, B. G.

"Flash Point Concentration Limits of Hydrocarbons and Hydrocarbon Fuels"

Moscow, Khimicheskoye Shtetl, Vol 46, No 2, Feb 72, pp 374-376

Abstract: Concentration limits of a solid phase flash point of various hydrocarbons and hydrocarbon fuels determined in containers made of different materials, and the temperature and the degree of dilution with an inert gas are described well by a general equation:

$$\bar{P} = f(\bar{C})(C_0 - 1)/\bar{C}(C_0 - \bar{C})$$

where  $\bar{C}_0 = 1/C_0$  and  $f(\bar{C})$  is an experimentally determined function.

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Organ and Tissue Transplantation

USSR

UDC 616.12-089.843-089.12

BREDIKIS, YU. I., and PUTEELIS, R. A., Chair of Hospital Surgery,  
Kaunas Medical Institute

"Topographical and Anatomical Justification of Surgical Approaches  
in Heart Transplant Operations"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 1, 1970,  
pp 12-16

Abstract: The merits of various surgical approaches in heart transplant operations were studied in 20 cadavers of dogs and 20 cadavers of children and adults using as criteria: depth of the wound angle of operation along the length and width of the incision, and angle of inclination of the axis of operative action. Among seven methods tested, the lateral intercostal approach was found best for animals, the longitudinal transsternal approach for children, and a combined sternal-lateral approach for adults.

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Acc. Nr: **AP0040330**

Ref. Code: **UR0481**

PRIMARY SOURCE: Eksperimental'naya Khirurgiya i Anesteziologiya,  
1970, Nr / , PP 12-16

POLAROGRAPHIC AND ANATOMICAL JUSTIFICATION OF APPROACHES  
FOR TRANSPLANTATION OF THE HEART

Yu. I. Bredikis, R. A. Putelis

At the present the problem of transplantation of the heart is solved by two ways — homotransplantation or replacement of the heart by a mechanical appliance. The general method for solution of this phenomena is the choice of the operation approach. The method of Sozon-Yaroshevich was used to assess approaches to the heart on human and dog cadavers. In experiment the best approach is the lateral intercostal one. Transplantation of the human heart can be achieved from longitudinal transsternal approach in children and combined sterno-lateral approach in adults.

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Precision Mechanical and Optical

USSR

UDC 535.417

ZHIGLINSKIY, A. G., and PUTILIN, E. S.

"Formation of a Wave Front by Means of Interference Coatings"

Leningrad, Optika i Spektroskopiya, Vol 32, No 6, Jun 72, pp 1176-1179

Abstract: The article considers the question of giving interference dielectric coatings additional functions involving the formation of a light wave front without impairing the reflecting properties of the coatings. A solution is found for the problem of forming a flat wave surface by means of an interference coating applied to a substrate whose surface possesses axial symmetry. It is suggested that the flat wave surface be formed by applying a quarter-wave mirror with a thickness of variable radius. The relation between the thicknesses of the mirror layers does not depend on the radius, but the thickness of the layers themselves does. Calculations are outlined for variations in the shape of the wave front during reflection by the quarter-wave mirror. Such mirrors are obtained in a device analogous to the one described by K. KREBS with birotation of the substrate. The geometry of the evaporator device is calculated. As an example of the formation of

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ZHIGLINSKIY, A. G., and PUTILIN, E. S., Optika i Spektroskopiya, Vol 32, No 6, Jun 72, pp 1176-1179

a wave front, it is shown that mirrors can be obtained experimentally in which the deflection from the plane is 5-6 times less than the deflection of the substrate surface from the plane.

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USSR

UDC 539.234:669.231

ZHIGLINSKIY, A. G., Candidate of Sciences, PUTILIN, E. S.

"Optimal Conditions for the Formation of Homogeneous Thin Films"

Leningrad, Optiko-mekhanicheskaya promyshlennost', No. 9, Sep 71, pp 46-49

Abstract: The method for obtaining thin films by evaporation of material in a vacuum on a substrate subjected to a double rotation is discussed. Such homogeneous thin films are widely used in laser resonators, interference filters, and interferometers. Optimal conditions are found for obtaining films that are homogeneous in thickness under double rotation. It is shown that the optimal geometry of evaporating devices for single and double rotation is different. It was calculated that the area of the homogeneous coating should be approximately an order of magnitude greater under double rotation than under single rotation. Experimental results are presented to support this.

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USSR

UDC: 621.315.592

GORBACHEV, V. V., OKHOTIN, A. S., MALOVETSKAYA, V. M., and ~~PUTILIN~~  
I. M. Moscow Institute of Steel and Alloys

"Investigating the Infrared Reflection Spectra of Tin Telluride"

Leningrad, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972,  
pp 1034-1036

Abstract: Because of the high concentration of free charge carriers in degenerate semiconductors, most methods for determining the basic parameters of the semiconductor material become complex. Hence, the optical method of investigation is preferred. In this paper, a description is given of experiments for finding the effective mass of the holes and the relaxation time in tin telluride (SnTe) by experimentally measuring infrared reflection spectra. In these experiments, the effect of the charge carrier concentration on the position of the plasma minimum was investigated. The reflection coefficient was measured in monocrystalline SnTe, grown by the Bridgeman method, with concentrations of  $3.25 \cdot 10^{20}$  to  $6.25 \cdot 10^{20}$  per cc. Specimens were cut in the form of plates 0.5 mm thick, and the carrier concentration in them was determined by the Hall effect.

USSR

UDC: 669.891.053.2

PUTILIN, Yu. M., ROMANOVA, A. D., BAZAROVA, S. I., KUCHANSKAYA, O. F.,  
SHIGANOVA, G. A.

"The Interaction of Fluorite with Aluminum Oxide with Heating"

Tekhnol. Mineral'n. Syr'ya [Technology of Mineral Raw Materials -- Collection of Works], Alma-Ata, 1972, pp 135-144 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G197, by G. Svodtseva).

Translation: The interaction of  $\text{CaF}_2$  with  $\text{Al}_2\text{O}_3$  was studied as they were heated in a vacuum (residual pressure about 0.1 mm hg) and in air in the 900-1300° temperature interval. The charge was made by a double decomposition reaction. In the 1200-1300° temperature interval,  $\text{CaF}_2$  partially sublimates and simultaneously interacts with  $\text{Al}_2\text{O}_3$  in an exchange reaction. The  $\text{CaO}$  liberated in this process forms Ca dialuminate with  $\text{Al}_2\text{O}_3$ . As the temperature is increased to 1200°, the quantity of dialuminate increases to 50%. A new compound appears,  $5\text{CaO} \cdot 3\text{Al}_2\text{O}_3$ . As the  $\text{CaF}_2$  is heated with  $\text{Al}_2\text{O}_3$  in air to 900-1100°, pyrolysis of  $\text{CaF}_2$  occurs. At 1200° and higher, sublimation and

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USSR

Putilin, Yu. M., Romanova, A. D., Bazarova, S. I., Kuchanskaya, O. F., Shiganova, G. A., Tekhnol. Mineral'n. Syr'ya, Alma-Ata, 1972, pp 135-144.

an exchange reaction between  $\text{CaF}_2$  and  $\text{Al}_2\text{O}_3$  are observed. The  $\text{AlF}_3$  formed is hydrolyzed by water vapor in the air. The products of the secondary interaction of  $\text{CaO}$  and  $\text{Al}_2\text{O}_3$  are: up to  $1200^\circ$  --  $\text{CaO} \cdot 2\text{Al}_2\text{O}_3$ , over  $1200^\circ$  --  $5\text{CaO} \cdot 3\text{Al}_2\text{O}_3$ . 4 tables, 6 biblio. refs.

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USSR

UDC: 669.725.046.4

PUTILIN, Yu. M., ROMANOVA, A. D., FAVORSKAYA, L. V.

"Chemical Enrichment of Beryllium Flotation Concentrates by Sulfate-Fluoride Methods"

Tekhnol. Mineral'n. Syr'ya [Technology of Mineral Raw Materials -- Collection of Works], Alma-Ata, 1972, pp 48-57 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G187, by G. Svodtseva).

Translation: The effectiveness of sulfatizing as a method of chemical concentration of Be concentrates depends primarily on their mineralogical composition. The effectiveness of the process can be increased by the addition of fluorinating agents (NaF and  $\text{Na}_2\text{SiF}_6$ ). Due to the decreased losses of Be,  $\text{Na}_2\text{SiF}_6$  is more effective. The best indicators are produced for a concentrate containing 3.4% BeO. The improved concentrate contains about 6% BeO. 7 tables.

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USSR

UDC: 669.725.053.4.068

PUTILIN, Yu. M., ROMANOVA, A. D., FAVORSKAYA, L. V.

"Influence of Aluminum on Extraction Separation of Beryllium from Fluoride Solutions"

Tekhnol. Mineral'n. Syr'ya [Technology of Mineral Raw Materials -- Collection of Works], Alma-Ata, 1972, pp 203-207 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1972, Abstract No 8G191, by G. Svodtseva).

Translation: Be was extracted with fatty acids of the  $C_7$ - $C_9$  fraction with a ratio of organic phase to aqueous phase of 1:1. It was established that at the equilibrium pH = 4.0-4.2, Al is extracted to 67%, the degree of extraction of Be varying slightly -- from 3.5 to 6%. The calculation factor for separation of Al and Be at pH 3.5-4.2 is 27-35. In order to study the behavior of Be in the presence of Al, solutions with molar ratios of Al and Be of 0.21:1 to 1.72:1 were used. The extractability of Be increases sharply in the presence of Al. As the molar ratio of Al to Be was increased from 0.21:1 to 1.72:1, the degree of extraction of Be increased from 32 to 68%. With extraction in three stages from a solution of fluorides, 97% of the Al and 83% of the Be go over into the organic phase. It is impossible to separate Al and Be from solutions of their fluorides by extraction with fatty acids. 4 tables, 5 biblio. refs.

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USSR

UDC: 669.295.053.4

PUTILIN, Yu. M., MULDAGULOVA, A. D.

"Determination of the Degree of Conversion of Ilmenite in Concentrates"

Tekhnol. Mineral'n. Syr'ya [Technology of Mineral Raw Materials -- Collection of Works], Alma-Ata, 1972, pp 26-32 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G213, by G. Svodtseva).

Translation: The basic indicators of the degree of conversion of ilmenite are: the increase in the content of Ti in the form of rutile, the predominance of the -ide form of Fe over the -ous form, the low specific gravity, high temperature of beginning of interaction with  $H_2SO_4$  and low extraction of Ti into the solution during sulfatizing. Ilmenite of the Prognoznoye deposit is slightly converted. The extraction of Ti when it is sulfatized is 92%. Concentrates from Obukhovskoye and Kum-Kol'skoye deposits are strongly converted. Only 65-70% of the Ti from these concentrates goes into solution. When the unconverted concentrate from the Kusinskoye deposit is decomposed, the extraction of Ti into solution is 96%. 5 tables.

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USSR

UDC: 669.725.053.4.068

PUTILIN, Yu. M., ROMANOVA, A. D., FAVORSKAYA, L. V.

"Extraction Method of Separation of Beryllium from Impurities"

Tekhnol. Mineral'n. Syr'ya [Technology of Mineral Raw Materials -- Collection of Works], Alma-Ata, 1972, pp 196-202 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G190, by G. Svodtseva).

Translation: The conditions of extraction of Be and the possibility of its separation from the impurities Fe, Al and Mn are studied. Extraction was performed with an O:A ratio of 1:1. The extracting agent used was fatty acid, fraction C<sub>7</sub>-C<sub>9</sub>. Reextraction was performed with HCl solutions. The extraction of carboxylic acid from the fluoride solutions allows Be to be separated not only from Fe, but from the main mass of the Al as well. As the pH of the solution was increased from 2.5 to 9.1, the extraction of Fe in the reextract increased from 15.2 to 88.3%. The extractability of Al increases to 67.3%, while that of Be remains practically constant to pH = 10, at 5-6%. As the pH is increased to 11, extraction of Al into the reextract increases to 11.5%. Extraction directly from solution, produced by leaching with 5-10% H<sub>2</sub>SO<sub>4</sub>, does

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USSR

Putilin, Yu. M., Romanova, A. D., Favorskaya, L. V., Tekhnol. Mineral'n. Syr'ya, Alma-Ata, 1972, pp 196-202.

not remove the impurities from the Be. In order to convert the Be to the fluoride form, the solution was treated with K by fluoride at pH 4.5 and 9. Purification by this method produced a product containing 80% BeO, with an extraction of 80.5%.

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USSR

UDC: 669.725.053.4.094

PUTILIN, Yu. M., ROMANOVA, A. D., FAVORSKAYA, L. V.

"Acid Methods of Extraction of Beryllium from Phenacite Concentrate"

Tekhnol. Mineral'n. Syr'ya [Technology of Mineral Raw Materials -- Collection of Works], Alma-Ata, 1972, pp 74-82 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 86189, by G. Svodtseva).

Translation: The process of extraction of Be from phenacite concentrate by treatment with HCl and  $C_2SO_4$  under various conditions was studied. 30% HCl and 93%  $H_2SO_4$  were used for decomposition. Leaching was performed at room temperature and at  $92 \pm 3^\circ$ , time varying from 1 to 6 hours. The S:L ratio was varied as a function of acid consumption. It was established that HCl was ineffective. The BeO extraction was 3-4%. The effectiveness of treatment of the concentrates increases if they are roasted at various temperatures for 4 hours. For example, when 18% HCl is used in leaching, the extraction of BeO from a concentrate roasted at  $400-800^\circ$  is 7-11%. When the concentration is sulfatized with 60%  $H_2SO_4$ , with a consumption of 150% of the theoretically necessary quantity, the extraction of Be into the solution is 48.4%. Increasing

1/2

USSR

Putilin, Yu. M., Romanova, A. D., Favorskaya, L. V., Tekhnol. Mineral'n. Syr'ya, Alma-Ata, 1972, pp 74-82.

the acid consumption to 200% and its concentration to 90% increases extraction of Be to 55.8 and 78.7% respectively. 6 tables.

2/2

- 14 -

1/2 012  
UNCLASSIFIED  
TITLE--EXTRACTION OF SCANDIUM FROM CHLORIDE SOLUTIONS USING TRIBUTYL  
PHOSPHATE -U-  
AUTHOR--(05)-FAVORSKAYA, L.V., PRESNETSOVA, V.A., PUTILIN, YU.M., BAYBEKOV,  
M.K., VOROBYEV, L.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(5), 1158-60  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--SOLVENT EXTRACTION, SCANDIUM, ORGANIC SOLVENT, PHOSPHATE ESTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3004/0940

STEP NO--UR/0080/70/043/005/1158/1160

CIRC ACCESSION NO--AP0131525

UNCLASSIFIED

PROCESSING DATE--04DEC70

UNCLASSIFIED

2/2 012  
CIRC ACCESSION NO--AP0131525  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXTN. OF SC FROM HCL SOLNS.  
WAS STUDIED IN THE PRESENCE OF FE(II), FE(III), AND OTHER IONS GENERALLY  
PRESENT WITH SC IN ITS ORES. THE COMPN. OF THE ARTIFICIALLY PREPD.  
SAMPLE WAS MGCL SUB2 30, FECL SUB2 9, TICL SUB4 2, FECL SUB3 2, KCL PLUS  
NACL 21, CACL SUB2 3, SC SUB2 0 SUB3 0.02, ALCL SUB3 3PERCENT. THE  
EXTN. WAS WITH 70PERCENT BU SUB3 PD SUB4 SOLN. IN KEROSENE. THE RATIO  
OF THE ORG. AND AQ. PHASES WAS 1:3. THE MIXT. WAS STIRRED MECH. FOR 5  
MIN. THE SC WAS REEXTD. WITH 3:1 ORG. TO WATER PHASE RATIO 1ST WITH 2N  
HCL AND THEN WITH H SUB2 0. HYDROXIDE WAS PPTD. BY NH SUB3 FROM THE 1ST  
REEXT. SC CAN BE EFFECTIVELY EXT. FROM THE ABOVE ARTIFICIALLY PREPD.  
MIXT. IN A TYPICAL EXPT. THE 1ST REEXT. PORTION CONTD. 5.3-6PERCENT SC  
SUB2 0 SUB3 AND THE 2ND, 20-30PERCENT SC SUB2 0 SUB3.  
KAZ. NAUCH.-ISSLED. INST. MINER. SYR'YA, ALMA-ATA, USSR. FACILITY:

UNCLASSIFIED

USSR

UDC: 621.317.757

GERSHENZON, Ye. M., NEGIREV, A. A., PUTILOV, P. A., TUMANOV, B. N.

"An Autodyne Radio Spectrometer"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 26, 1970, Soviet Patent No 278797, Class 21, filed 2 Dec 68, p 47

Abstract: This Author's Certificate introduces an autodyne radio spectrometer for the submillimeter wavelength range which contains a source of SHF oscillations, with a phase shifter and attenuator connected to this source. As a distinguishing feature of the patent, the measurement precision is improved by using a backward wave tube with dc-isolated decelerating system and collector as the SHF source.

1/1

USSR

UDC 620.197.7

KORSAKOV, K. K., and PUTILOV, V. YE.

"Protective Properties of Liquid Mothballing Lubricants and Inhibitors Under Tropical Conditions"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, p 744

Translation: Some results of checking the protective properties of mothballing lubricants and inhibitors of atmospheric corrosion under the conditions of a wet tropical climate (the vicinity of Indonesia) are reported.

Samples of SCh 15-32 cast iron, Kh18N9T steel, AMTs aluminum alloy, St. 3 steel, M3 copper, 38KhMYuA steel, AMts-9-2 bronze, St. 45 steel, and AV2 brass were stored in bundles in a warehouse and in the open air in wooden crates of various designs.

The following mothballing lubricants and oils were tested: K-17, NG-203A, NG-203V, NG-204u, API-11 (cylinder oil 52 with 5% SPEK inhibitor), and DSP-11 diesel oil with 10% AKOR-1 additive.

After being stored for a year in a ventilated warehouse with packaging in wooden crates, satisfactory results were obtained only when using the K-17 lubricant.

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USSR

KORSAKOV, K. K., and PUTILOV, V. YE., Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, p 744

When using KTSa inhibitor the bundles were strapped in sheeting impregnated with microwax. A gauze bag with the inhibitor was put inside the casing. The casings were wrapped in wax paper and packed in boxes without sidewalls. Individual corrosion damage was detected on brass, bronze, copper, cast iron, and St. 3, St. 45, and 38KhMYuA steels.

All the materials mothballed in a mixture of GZh-2 contact inhibitor wrapped in wax paper and packed in a box without sidewalls had corrosion damage over 50-100% of the surface.

No visible changes in the wooden crates and packing materials were noted. Rubber packing made impressions on the metal plates.

2/2

USSR

UDC 620.197.7

PUTILOV, V. YE.

"Lubricant Protection of Metals from Corrosion at Negative Temperatures"

Moscow, Zashchita Metallov, Vol 6, No 6, 1970, pp 744-745

Translation: Low temperatures complicate mothballing of products under winter conditions and can have negative effects on the protective and other properties of mothballing lubricants.

In order to determine the effect of low temperatures on the physical-chemical properties of lubricants, K-17 lubricants in factory packaging were placed in an unheated area and stored for up to 3 years. During this time the temperature in the facility varies from -25° to +30°. On testing the lubricant it turned out that the physical-chemical properties had not changed during the storage time.

Under laboratory conditions, samples mothballed using K-17 and K-17n lubricants were cooled to -40°, and they were held at this temperature for 2 hours after which they were placed in a humidity chamber. The protective properties of the lubricants did not change after low-temperature treatment.

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USSR

PUTILOV, V. YE., Zashchita Metallov, Vol 6, No 6, 1970, pp 744-745

The following metals were used for test-unit testing: SCh24-44 cast iron (GOST All-Union State Standard 1412-54), St.3 steel (GOST 380-50), copper (GOST 859-41), LS-59 brass (GOST 1019-47), and DI aluminum alloy (GOST 4784-49). The samples were sanded and washed in a benzene-alcohol mixture, and they were mothballed by submersion in the lubricant and storing in an unheated facility. Then three samples of each metal were suspended on wire hooks in the unheated facility with air temperatures of -8, and -15°. After 6 months no corrosion damage was detected except that the copper samples had darkened somewhat.

In January 1964, various products were mothballed at temperatures of -6° and -16° and placed in storage in unheated warehouses. Two exceptions were internal combustion engines, which were stored in the open air in wooden boxes covered with tarpaulin, and loaders, which were stored in canvas cases. The first inspection of all the products was done in July-August 1965. No changes were detected in the state of the lubricants and the mothballed surfaces. At lower temperatures it is expedient to heat thickened lubricants to 115-120°, but they lose their protective properties if heated to higher temperatures.

As practice has shown, the technological process for mothballing using K-17 and K-17n lubricants is the same in summer and winter to a temperature of -16°.

2/2

USSR

UDC 576.858.5.095.38.095.18:547.751

KOLMYKOVA, V. N., and PUTILOVA, G. I., Institute of Pharmacology, Academy of Sciences USSR

"Effect of Indole Derivatives on the Adenovirus - Cell System"

Moscow, Voprosy Virusologii, No 5, 1971, pp 576-579

Abstract: The following four indole derivatives were tested as possible anti-adenovirus agents: (i)  $\beta$ -dimethylaminoethyl ester of 1-( $\beta$ -dimethylaminoethyl)-2,3-dimethylindolecarboxylic-5 acid (ALA-306) dichloride (ALA-306); (ii)  $\beta$ -dimethylaminoethyl ester of 2,3-dimethylindolecarboxylic-5 acid hydrochloride (ALA-251); (iii) 8-amino-1,2,3,4-tetrahydrothiopyrane [4,3-b]-indole hydrochloride (K-191); (iv)  $\beta$ -dimethylaminoethyl ester of 1-benzyl 2,3-dimethylindolecarboxylic-5 acid hydrochloride (K-281). Adenovirus types 5 and 7 were used in cell cultures of testicular (CaOy) and gastric (CaYc) carcinomas. ALA-306 and K-191 did not inhibit viral reproduction or exert any protective action regardless of the method used. K-281 did not have any direct effect on viral replication but it partly prevented the viral particles from entering the cell. ALA-251 (500 to 1000  $\mu$ g/ml) inhibited viral replication, regardless of the method used, and the cells continued

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USSR

KOLMYKOVA, V. N., and PUTILOVA, G. I., Voprosy Virusologii, No 5, 1971, pp 576-579

to live and multiply. However, there was no true cytopathic effect on the cells nor was any complement-fixing antigen found. The complement-fixation reaction was negative. The culture fluid was not infectious.

2/2

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USSR

UDO 535.376:621.382

BALUKOVA, G.N., FUTILOVSKAYA, M.YU., TISHKIN, A.N.

"Thermal Resistance Of Gallium Arsenide Light-Emitting Diodes In A Static Regime"

Elektron.tekhnika. Nauch.-tekhn.sb. Poluprovodn. pribory (Electronics Technology. Scientific-Technical Collection. Semiconductor Devices), 1972, Issue 4(68), pp 81-85 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B355)

Translation: The paper studies the thermal regime of noncased small-sized light-emitting diodes of GaAs obtained by the diffusion method. A calculation of the thermal resistance is presented as well as an evaluation of the maximum excess of the temperature of the light-emitting diode above the environment with a given dissipated power. The calculated data are compared with the experimental. Summary.

1/1

USSR

UDC: 517.917

KUKLES, I. S. and FUTILOVA, R. I.

"The Characteristics of an Origin With Semi-Singular Orders of Curvature"

Kazan', Izvestiya VUZ--Matematika, No 8(123), 1972, pp 70-80

Abstract: The origin is here defined as an isolated singular point, where the zero curves have specified orders of curvature. Two exceptions for the system of coordinates built around this origin are noted. The circumstances for the first of these, in which  $m$  and  $n$  of the following equations,

$$\frac{du}{dx} = \frac{X_1(u, y_1, z)}{z^m Z_1(u, y_1, z)}, \quad \frac{dy_1}{dz} = \frac{Y_1(u, y_1, z)}{z^n Z_1(u, y_1, z)},$$

are less than unity, have been studied in detail by the first of the authors named above in two earlier articles published in the same journal (Rasprostraneniye metoda Frobeniya na sistemu trekh differentsial'nykh uravneniy -- Extension of the Frobenius Method to a System of Three Differential Equations, 1968, No 9, pp 44-54; Ob osobyykh i kvaziosobyykh porvyadkakh krivizny -- Singular and Quasi-Singular Orders of Curvature, 1970, No 2, pp 32-39). The second, 1/2

USSR

UDC: 517.917

KUKLES, I. S., et al, Izvestiya VUZ--Matematika, No 8(123), 1972, pp 70-80

in which either  $m$  or  $n$  may be less than one or both greater than one, is discussed in the present paper. Because the orders of curvature of the zero curves are semi-singular, the system of equations reproduced above has zero, semi-singular orders of curvature. The condition that the characteristics of the system intersect the plane  $z = 0$  is a condition of this second exception.

2/2



USSR

UDC: 621.391.81

KUZENKOV, V. D., PUTILOVA, S. A.

"Effect of Limited Noise on a Receiver With Amplitude Detector"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1970, vyp. 44, pp 54-64 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A55)

Translation: The authors determine conditions under which the variance of the envelope of the process at the output of an ideal linear amplitude detector (or the variance of the square of the envelope in the case of a quadratic detector) reaches maximum values at fixed values of the input noise. The latter is narrow-band Gaussian noise with a zero average limited by an inertialess bilateral symmetric clipper with constant limiting level. Five illustrations, bibliography of six titles. N. S.

1/1

- 22 -

UDC 621.762.2

USSR

GRATSIANOV, YU. A., PUTIMTSEV, B. M., and SILAYEV, A. F.,

"Metal Powders From Melts"

Metallicheskiye poroshki iz rasplavov (cf. English above), Moscow, "Metallurgiya," 1970, 245 pp, ill., 73 k (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G403K by authors)

Translation: Some questions regarding the structure of metallic melts are considered, as well as their physical and technological properties. On the basis of experiments, mechanisms of the failure of the flow of metallic melts are analyzed, as well as the shape and structure formation of powder particles. The shape of powder particles and powder dispersity can be regulated. The authors note the large part played by small impurities, superheating, and supercooling in the shape and structure formation of particles. The technological processes for obtaining metal powders and alloys are described. Ninety-three illustrations. Forty-seven tables. Bibliography with 130 titles.

1/1

- 28 -

Powder Metallurgy

UDC 621.762.224

USSR

SILAYEV, V. A., and PUTIMTSEV, B. N., Redkin Experimental Plant and Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Properties and Use of Sprayed Metal and Alloy Powders"

Kiev, Poroshkovaya Metallurgiya, No 9, Sep 73, pp 1-5

Abstract: Data from studying the process of producing powders from melts under production conditions and results of studying certain physical and engineering properties of powders and pure metals (iron, nickel) and alloy powders (bronze, steel Kh18N9) are presented. The powders were made in a gas-jet unit at the Redkin Experimental Plant according to technology developed jointly with the Institute of Precision Alloys, Central Scientific Research Institute of Ferrous Metallurgy: melting metals and alloys in a basic crucible, diffusion deoxidation of the melts through a synthetic limestone slag with calcium borate, and dispersion of the jet of the melt with technically pure nitrogen (99.8% N<sub>2</sub>). Data are presented on using air, nitrogen or argon mediums for spraying powders and the resultant content of oxygen and nitrogen after spraying, after annealing in hydrogen, and after sintering in hydrogen, where the contents of the two gases diminishes in the order given above. Tables are given which show the volumetric mass, pycnometric density, flowability, and pressability of the sprayed powders. 2 figures, 4 tables, 1 bibliographic reference.

1/1

USSR

UDC: 621.762.2:669.1'24(088.8)

PUTIMTSEV, B. N., GRATSIA NOV, Yu. A., KOZLOV, A. G., MINCHER, A. N.,  
LEVINZON, V. Kh., STERLIN, R. G., BAKANOVA, T. P., BIKEZIN, K. P., MIKHEYEV,  
V. V.

"Method of Production of Iron-Nickel Alloy Powders"

USSR Author's Certificate Number 343771, Filed 7/04/71, Published 11/08/72  
(Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract  
No 8G394P).

Translation: A method is suggested for embrittlement of Fe-Ni alloys,  
designed for the production of powders by mechanical grinding. Fe-Ni alloys  
are embrittled by introduction of S to the initial melt. In order to increase  
the dispersion and technological properties of the powders, 0.03-0.07 wt %  
oxygen is also introduced to the initial melt, with a ratio of oxygen to S of  
2.0-7.0.

1/1

USSR

UDC 621.762.224

GRATSIA NOV, Yu. A., PUTIMTSEV, B. N., and SILAYEV, A. F.

"Metallicheskiye poroshki iz rasplavov" (Metal Powders From Melts), Moscow, Izd-vo "Metallurgiya," 1970, 248 pp

Translation of Annotation: Certain problems of the structure of metal melts and their physical and technological properties are considered. On the basis of experiments, analyses are made of mechanisms of metal fusion stream disintegration, and of the shape and formation of structure of powder particles. It is shown that the shape and size of a powder particle may be controlled. The significant role played by small additions, overheating and overcooling in the formation of particle shape and structure is pointed out. Industrial processes for the production of metal powders and melts are described.

The book is intended for scientific and engineering-technical personnel of research institutes, who are involved with problems related to physical and powder metallurgy and metal ceramics. Ninety-three figures, 47 tables, 130 references.

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USSR

GRATSIANOV, Yu. A., et al., "Metallicheskiye poroshki iz rasplavov" (Metal Powders From Melts), Moscow, Izd-vo "Metallurgiya," 1970, 248 pp

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USSR

GRATSIANOV, Yu. A., et al., "Metallicheskiye poroshki iz rasplavov" (Metal Powders From Melts), Moscow, Izd-vo "Metallurgiya," 1970, 248 pp

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USSR

GRATSIANOV, Yu. A., et al., "Metallicheskiye poroshki iz rasplavov" (Metal Powders From Melts), Moscow, Izd-vo "Metallurgiya," 1970, 248 pp

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USSR

GRATSIANOV, Yu. A., et al., "Metallicheskiye poroshki iz rasplavov" (Metal Powders From Melts), Moscow, Izd-vo "Metallurgiya," 1970, 248 pp

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- 50 -

USSR

UDC 621.762.22

PUTINTSEV, B. N., LEVINSON, V. Kh., Central Scientific Research Institute for  
Ferrous Metallurgy imeni I. P. Bardin

"Production of Powders by Mechanical Grinding of Iron-Nickel Alloys Containing  
Sulfur"

Poroshkovaya Metallurgiya, No 1, 1972, pp 6-10.

Abstract: Alloy type 80N2M is used as an example to show the promise for the  
production of iron-nickel alloy powders by mechanical grinding of sulfur-  
embrittled compact alloys. The optimal sulfur content in 80N2M alloy is es-  
tablished for formation of fine grain during hot rolling and effective grind-  
ing of the hot-rolled alloy in mechanical impact mills. The physical and  
technological properties of iron-nickel alloy powders produced by combined  
reduction of oxides, spraying of melted streams, and mechanical grinding of  
hot-rolled alloy embrittled with sulfur are compared. Alloy type 80N2M is  
used as an example to show the advantages of the method of mechanical grind-  
ing for the preparation of powders with high volumetric mass and pycnometric  
density, as a basis for the creation of high-permeability magneto dielectrics.

1/1

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USSR

UDC 669.721.042.6(088.8)

TAGAKIN, A. N., KORZNIKOV, V. M., BELKIN, G. I., ALONTSEV, V. S., PROVODNIKOV, A. A., MAZUROV, G. A., TITAYEV, I. A., PUTINA, O. A., MATSUY, N. V., BOCHKAREV, G. V., NAGIBIN, V. M.

"Method of Processing of Magnesium Ingots"

USSR Author's Certificate No 313908, filed 16/03/70, published 10/11/71,  
(Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract  
No 5 6248 P by G. Svodtseva).

Translation: A method of processing of Mg ingots including transportation, cooling, mechanical working, washing, etching, drying and covering with a protective layer is proposed. In order to reduce the labor expenditures for the process and process time, the ingots are subjected to forced cooling to 450-100°, mechanically worked during transportation, and washed at 350-100°. This reduces labor consumption, decreases the time of the process, and increases the productivity of labor by 40-80%.

1/1

1/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--NONSYPATHETIC CARDIO STIMULATING SECRETION FROM HEART DURING  
STIMULATION OF THE SYMPATHETIC NERVE -U-  
AUTHOR-(02)-PUTINTSEVA, T.G., RESHETNIKOVA, N.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIOL. ZH. SSSR IM. T. M. SECHENOVA 1970, 56(2), 231-6

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SYMPATHETIC NERVOUS SYSTEM, SECRETION, PRDG, HEART,  
ADRENALINE, NORADRENALIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/0425

CIRC ACCESSION NO--AP0117661

STEP NO--UR/0239/70/056/002/0231/0236

UNCLASSIFIED

2/2 018  
CIRC ACCESSION NO--AP0117661  
ABSTRACT/EXTRACT--(U) GP-0-  
UNCLASSIFIED  
PROCESSING DATE--30OCT70  
ABSTRACT. IN ADDN. TO THE ADRENERGIC  
MEDIATOR APPEARING DURING SYMPATHETIC STIMULATION IN FROG HEART  
PERFUSATE, AN ACTIVE STIMULATORY FACTOR ALSO APPEARED. THE PHYSIOL.  
ACTIVE SUBSTANCE (I) WAS THERMOSTABLE AND STIMULATED THE RECIPIENT HEART  
WITHOUT REDN. BY THE BETA ADRENOLYTIC DICHLORO ISOPROTERENOL. BOTH  
PROPERTIES WERE OF A NONCATECHOL AMINE NATURE. UNCOUPLING BY  
2,4,DINITROPHENOL DID NOT EFFECT THE RELEASE OF I FROM THE DONOR HEART  
DURING SYMPATHETIC NERVE STIMULATION, WHILE THE GLYCOLYTIC POISON NAF  
COMPLETELY INHIBITED THIS PROCESS. THUS, RELEASE OF I SEEMS TO DEPEND  
ON GLYCOLYSIS. I WAS ANALOGOUS TO FACTOR A, THE CARDIOSTIMULATORY  
SUBSTANCE RELEASED FROM THE MYOCARDIUM BY EXOGENOUS ADRENALINE OR  
NORADRENALINE. FACTOR A INCREASED THE EFFECTIVENESS OF FROG HEART  
SYMPATHETIC NERVE STIMULATION.  
FACILITY: KH. S. KOSHTOYANTS  
PHYSIOL. LAB., INST. EVOL. BIOL., MOSCOW, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ASSESSMENT OF SOME ROENTGENOTOMOGRAPHIC SIGNS OF MITRAL STENOSIS  
AND MITRAL INCOMPETENCE -U-  
AUTHOR--(05)-PUTOV, N.V., KOBLENTSMISHKE, A.I., GUDIMLEVKOVICH, V.N.,  
ROZHKOV, A.S., POSEVIN, D.I.  
COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 1, PP 26-32

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, HEART SURGERY, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/0126

STEP NO--UR/0497/70/048/001/0026/0032

CIRC ACCESSION NO--AP0122392

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0122392

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IN 100 PATIENTS SUBJECTED TO

MITRAL COMMISSUROTOMY THE DEGREE OF STENOSIS OF THE LEFT

ANTRIOVENTRICULAR ORIFICE AND MITRAL INCOMPETENCE WAS COMPARED WITH

TOMOGRAPHIC SIZES OF THE LEFT BRANCH OF THE PULMONARY ARTERY AND LEFT

ATRIUM. IT WAS FOUND THAT SIGNIFICANT INCREASE (OVER 10.5 CM) OF THE

LEFT ATRIUM DOES NOT CONTRADICT THE DIAGNOSIS OF TIGHT MITRAL STENOSIS

AND INSIGNIFICANT MITRAL INCOMPETENCE, BUT THE ABSENCE OF SUCH AN

INCREASE TESTIFIES, AS A RULE, AGAINST IMPORTANT MITRAL INCOMPETENCE. A

MARKED DILATATION OF THE PULMONARY ARTERY IS CHARACTERISTIC FOR TIGHT

MITRAL STENOSIS, AN ABSENCE OF SUCH A DILATATION DOES NOT CONTRADICT THE

DIAGNOSIS OF TIGHT MITRAL STENOSIS. THERE WAS REVEALED A DISTINCT

RELATION IN CONJOINT EVALUATION OF THE SIZES OF THE LEFT ATRIUM AND

PULMONARY ARTERY.

UNCLASSIFIED

USSR

UDC 577.153.3

BOIDYREV, A. A., PETUKHOV, V. B., PUTOV, V. B., SPIKINA, G. D., and TKACHUK, V. A.

"Role of Acetylcholine and Imidazole-Containing Dipeptides in the Control of Cation Transport Through Muscle Membranes"

Ukrainskiy Biokhimicheskiy Zhurnal, Vol 43, No 1, 1971, pp 125-135

Abstract: Acetylcholine in the neuron-muscular apparatus has an additional function to its synaptic effect: it acts on the enzymatic properties of extrasynaptic muscular membranes, sarcolemma and sarcoplasmic reticulum. The effect of acetylcholine in combination with imidazole-containing compounds was studied. In particular, experimental data were collected on the effect of imidazole on contractile activity and the end plate potential of a nerve-muscle preparation from a frog, during rhythmic stimulation of a nerve. Experiments were conducted to determine the dependence of ATP-ase activity of heart muscle sarcolemma in a rabbit on the  $Na^+ : K^+$  ratio, the effect of addition of  $CaCl_2$  and EGTA [ethyleneglycol-bis(2-aminoethyl-ether)-N,N-tetraacetate] on the hydrolysis rate of ATP and acetyl phosphate of cardiac sarcolemma and the skeletal muscle; the dependence of inhibition of  $Ca^{2+}$ -ATP activity on the concentration of acetylcholine or buffer

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- 5 -



USSR

BOLDYREV, A. A., et al., Ukrainskiy Biokhimicheskiy Zhurnal, Vol 43, No 1, 1971, pp 125-135

solution; and the effect of acetylcholine on  $Ca^{+}$  transport in a preparation of sarcoplasmatic reticulum of a rabbit in the presence of acetylcholine. Fatigue or blocking of neuromuscular transmission by competing toxins is reduced and eliminated by imidazole-containing dipeptides. As a result, an increase in amplitude of the end plate potential is observed and its transformation into an action potential is facilitated. Intensified, spontaneous bioelectrical activity at the myoneural junction. Enzymatic activity of sarcolemma and sarcoplasmatic reticulum transport ATP-ase is inhibited by acetylcholine but enhanced by imidazole and its derivatives. The synergistic effect of both dipeptides and acetylcholine is a more complete inhibition of active ion transport. Experimental data are reported on some mechanisms for the transfer of sarcolemma excitation to the contraction process. Under the effect of acetylcholine, there may be a change in cation transfer. It is assumed that acetylcholine in combination with imidazole-containing dipeptides regulates the intensity and direction of cation transport through muscular membranes.

2/2

USSR

UDC 543.42:620.193.1:621.375.8

PUTRENKO, O. I., YANOVSKIY, A. A.

"Investigation of the Erosion of Metals by Light during a Laser Pulse"

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 15, No 4, Oct 71, pp 596-604

Abstract: The mechanism of the erosion of various metals by laser pulses was investigated. Samples of tin, lead, aluminum, copper, and iron were exposed to a beam from a laser operating in a free oscillation mode. The erosion products were visualized on a transparent organic glass disk between the sample and the laser. Scan records were made by rotating the samples during the laser pulse. The 7-joule pulse had a duration of  $\sim 1$  millisecc and was focused on the sample through a 200-mm focal length lens. The disk was rotated at 3000 rpm with the beam intersecting at a point approximately 65 mm from the center. Ejecta from the sample were deposited on the disk in the form of an elongated vapor spot, two comet-shaped deposits of small particles, and a track of large particles.

1/2

USSR

PUTRENKO, O. I. et al, Zhurnal Prikladnoy Spektroskopii, Vol 15,  
No 4, Oct 71, pp 596-604

When the beam first impinges on the sample, a vapor phase predominates (from 200 to 300 microsec). Following this, particles of condensed phase predominate. By rotating the face of the sample rapidly to a  $45^\circ$  angle toward or away from the spin axis of the disk, the vapor spot deposit is shifted accordingly on the disk and the duration of the vapor phase period is prolonged.

Some features of the formation of the erosion print on the sample and ejection of material under the action of the laser pulse were studied. It is shown that a quasistationary mode of print formation is reached when the erosion products begin to erupt in condensed phase. The time and space distribution of the ejecta can be used to selectively separate the erosion products into phases. Recommendations are made for optimizing the production of the gas phase.

Orig. art. has 2 figs. and 7 refs.

2/2

- 115 -

1/2 033 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--YIELD OF METAL SUBSTANCE FOR METALS EXPOSED TO THE ACTION OF LASER  
RADIATION -U-  
AUTHOR--(94)-KORUNCHIKOV, A.I., PANTELEYEV, V.V., PUTRENKO, O.L.,  
YANKOVSKIY, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(5), 819-23  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--BIBLIOGRAPHY, LASER THERMAL EFFECT, METAL SURFACE PROPERTY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/1425 STEP NO--UR/0368/70/012/005/0319/0823  
CIRC ACCESSION NO--AP0135099  
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135099

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 13 REFS., CONTG.  
DATA ON THE EFFECTS OF LASER RADIATION FOCUSED ON SN, PB, ZN, MG, AL,  
CU, NI, FE, MO, W, AND C TARGETS.

UNCLASSIFIED

Acc. Nr.

AP0029110

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii, 1970,  
Vol 70, Nr 1, pp 82-86

THE FUNCTIONAL SIGNIFICANCE OF DIFFERENT CELL  
GROUPS OF THE MAIN NUCLEUS OF THE OCULOMOTOR  
NERVE IN HUMANS

M. V. Putsillo

The question of muscular centre distribution in the main nucleus of the human oculomotor nerve despite a tremendous amount of literature is far from being solved. The author reports of 3 cases with a dissociated paresis of the external eye muscle. The main nucleus of the oculomotor nerve was studied on a continuous series of celloidin slices with a width of 20 microns and dyed by crezol-violet. Each twentieth slice was counted for the amount of preserved and regenerated nuclei cells. Clinico-anatomical correlations give grounds to assume that the muscle elevating the upper eyelid receives its innervation from the caudal part of the nucleus, the inferior rectal muscle receives its innervation from the border of the caudal and middle part, while as the internal rectal muscle -- from the oral part of the muscle. The axons of the oral part of the main nucleus of the oculomotor nerve do not cross, while as the axons of caudal part are crossed partly. The amount of crossed fibres do not exceed 26%.

REEL/FRAME  
19680621

2 MB

USSR

UDC: 51

PUTSIMA, I. M.

"An Algorithm for Selecting a Multiparameter Series, and an Example of its Realization"

Tr. VNII elektroizmerit. priborov (Works of the All-Union Scientific Research Institute of Electrical Measurement Instruments), 1971, 10, pp 53-61 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V585)

Translation: The paper analyzes an algorithm for optimizing multiple-parameter series of typonomials of technical facilities using the ideas of the method of branches and boundaries and successive improvement of variants. Author's abstract.

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USSR

UDC 621.375.024(088.8)

PUTSYKOVICH, D. V.

"MDM Type DC Amplifier"

USSR Author's Certificate No 259167, Filed 15 Aug 68, Published 23 Apr 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D94P)

Translation: An MDM type DC amplifier containing a modulator, an AC amplifier and a demodulator is proposed. The amplifier is distinguished by the fact that in order to decrease the null signal level at the output of the device and to decrease the effect of stray capacitances of the transformers on this level, the first windings of the transformers of the modulator and the electronic relay are connected simultaneously to the reference voltage source. Here, both secondary windings of the transformers, each loaded by a halfperiod rectifier, are connected to the bases of the input and output transistors of the mentioned relay, respectively, and the collector of the latter of the indicated transistors is connected via a diode to the emitters of the transistors of the two-cycle terminal cascade of the AC amplifier.

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USSR

UDC: 538.4

PUTYATA, V. I., SHER'YAZDANOV, G. B.

"Concerning Flow of a Liquid of Finite Conductivity Around a Thin Foil in a Transverse Magnetic Field"

Tr. II Resp. konf. po aerogidromekh., teploobmenu i massoobmenu. Sekts. "Aerodinamika bol'sh. skorostey" (Works of the Second Republic Conference on Aerohydrodynamics, Heat Exchange and Mass Exchange. "High-Velocity Aerodynamics" Section), Kiev, Kiev University, 1971, pp 218-224 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B14)

Translation: The authors study flow of an inviscid incompressible fluid of finite conductivity around a thin foil in the presence of an external homogeneous magnetic field. It is assumed that the magnetic field lies in the plane of the foil and is perpendicular to the direction of the undisturbed flow. The question reduces to solution of a boundary-value problem for the harmonic function  $\phi$  formulated previously (see McCune, J. E., J. Fluid Mech., 1960, 7, No 3, pp 449-468 -- RZhMekh 1962, 8B14); the distinguishing feature of this problem is the presence of a second derivative of  $\phi$  in the boundary condition. A method of solving this

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USSR

PUTYATA, V. I., SHER'YAZDANOV, G. B., Tr. II Resp. konf. po aerogidromekh., teploobmenu i massoobmenu. Sekts. "Aerodinamika bol'sh. skorostey", Kiev, Kiev University, 1971, pp 218-224

problem is proposed on the basis of asymptotic representation of  $\phi$  in the form of a series in a small parameter, and subsequent solution of the Hilbert problem for a plane with a slit. Bibliography of six titles. A. B. Vatazhin.

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USSR

UDC: None

PUTYATIN, N.

"Transistorized Receiver with Electronic Tuning"

Moscow, Radio, No. 12, 1970, pp 46-48

Abstract: This article gives details of the construction of a receiver whose characteristic peculiarity is that semiconductor diodes are used as the tuning circuit components. The author explains that there is a zone of charge carrier combination between the n- and p-regions of the diode, and that the width of this zone can be varied by varying the bias voltage on the diode. Since the latter is in effect a capacitor, with the n and p regions as plates and the carrier combination zone as dielectric, it can be used as a tuning capacitor working with an inductance. In this receiver, the inductance is tapped with switch points for long- and short-wave reception, and is used also as the antenna. The voltage applied to the tuning diode varies from 8 to 10 volts, obtained from a potentiometer connected across the receiver battery, which is of the "Krona" type. Schematics, photographs, and a vividly colored wiring diagram of this receiver, essentially a tuned radio frequency type, are given.

1/1

USSR

UDC: 8.74

BONDARENKO, M. F., PUTYATIN, Ye. P., SHABANOV-KUSHNARENKO, Yu. P.

"Axiomatic Construction of a Mathematical Model of Visual Adaptation"

Kibernet. i vychisl. tekhn. Resp. mezhved. sb. (Cybernetics and Computer Technology. Republic Interdepartmental Collection), 1972, vyp. 14, pp 40-49 (from RZh-Kibernetika, No 5, May 73, abstract No 5V852 by the authors)

Translation: The article deals with questions of axiomatic construction of a mathematical model of visual adaptation. The validity of the axioms is confirmed by experiments.

1/1

USSR

PUTYATIN, Ye. P., YURCHENKO, V. P., ABRAMOV, O. M., LEVIKOV, V. B.,  
BERMAN, V. A.

"Normalization of Rotations of Flat Images"

Probl. Bioniki. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb. [Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection], 1972, No 9, pp 61-69 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V706, by the authors).

Translation: With the goal of further development of the theory of construction of normalization operators for patterns subjected to rotation transformation, the unambiguity of correction of patterns to a standard position is studied, as well as the effects of interfering factors -- changes in brightness and background level.

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USSR

UDC: 621.391.19

PITYATIN, Ye. P., SHUL'GIN, I. V., YURCHENKO, V. P., ABRAMOV, O. M., Khar'-  
kov Institute of Radioelectronics

"A Device for Normalizing the Size of Flat Images for Pattern Recognition  
Systems"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 10, Apr 72, Author's Certificate No 332477, Division G, filed 13 Aug 70,  
published 14 Mar 72, p 200

Translation: This Author's Certificate introduces: 1. A device for nor-  
malizing the size of flat images for pattern recognition devices. The  
device contains a rotating platform which carries a television tube with  
deflecting coils, a photoelectric module for computing the coordinates of  
the center of gravity of the image, photographic objective lenses, and  
photocells with slit masks. The device also contains an electric drive  
unit for rotating the platform, and also line and frame scanning gener-  
ators. The input of the electric drive unit is connected to the outputs  
of the photocells, and the outputs of the drive are connected through a  
delay line to the controlling input of a video amplifier which is con-

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USSR

PUTYATIN, Ye. P. et al., USSR Author's Certificate No 332477

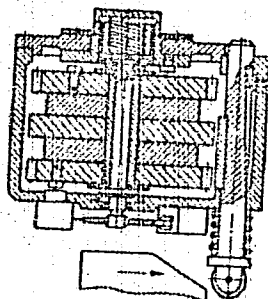
ected between the output of the television tube and a video monitoring and a computing module. As a distinguishing feature of the patent, in order to reduce the requirements for displacements and changes of scale of the images to be transformed, the device contains multipliers whose first inputs are connected to the outputs of the photoelectric module for computing the center of gravity of the image, while the second inputs are connected to the outputs of the frame and line scanning generators respectively. The outputs of the multipliers are connected to the corresponding coils. 2. A modification of this device distinguished by the fact that the electric drive unit for platform rotation contains two channels comprised of an inhibit circuit, a power amplifier, and an actuating motor connected in series. One input of the inhibit circuit is connected to the output of the corresponding photocell, and the other input of the inhibit circuit is connected to the output of the reference voltage source. The second output of each inhibit circuit is connected to the corresponding output of the electric drive unit.

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USSR

PUTYATIN, Ye. P. et al., USSR Author's Certificate No 332477



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USSR

UDC: 8.74

SHABANOV-KUSHNARENKO, Yu. P., SHUL'GIN, I. V., PUTYATIN, Ye. P., LOPAT-  
CHENKO, B. K.

"Mathematical Modeling of Human Classification of Certain Classes of  
Visual Patterns"

V sb. Upr. i inform. protsessy v zhivoy prirode (Control and Information  
Processes in Animate Nature--collection of works), Moscow, "Nauka", 1971,  
pp 106-111 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V596)

Translation: The authors consider the following problem of interpretation  
of formulas which describe conversion of input signals to output signals  
in the organ of vision. Let there be a certain signal converter in the form  
of block 1. Signals  $x_1, x_2, \dots$  may be sent to the input of block 1. Sig-  
nals  $y_1, y_2, \dots$  correspondingly appear at the output of block 1 in re-  
sponse to these signals. All possible signals  $x_1, x_2, \dots$  to which block  
1 reacts form some set  $X$ . All possible responses of the converter form  
the set  $Y$ . The operator  $F$  puts the elements  $y$  of set  $Y$  into correspondence  
with the elements  $x$  of set  $X$ . This correspondence may be expressed by the

1/2

USSR

UDC: 8.74

PUTYATIN, Ye. P., SERDYUCHENKO, V. Ya.

"Problems in the Theory of Edge Contrast in Human Vision"

Probl. bioniki. Resp. mashved. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1971, vyp. 6, pp 32-39 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1110)

Translation: The paper deals with an axiomatic method of constructing a mathematical model of the edge contrast in human vision. Authors' abstract.

1/1

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USSR

UDC 51:155.001.57:681.3.06

PUTYATIN, Ye. P., BARANNIK, V. V., PUTYATINA, G. M., SHUL'GIN, I. V.

"Statistical Aspects of the Recognition of Color Shadings"

Probl. Bioniki. Resp. Mezhd. Nauchno-tekhn. Sb. [Problems of Bionics, Republic Interdepartmental Scientific and Technical Collection], No 4, 1970, pp 74-80, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V648 by the authors).

Translation: Statistical problems of recognition of color are studied, an algorithm of recognition is suggested, considering the probable thresholds of vision in three channels. The design of a device for recognition of color shadings is discussed.

USSR

UDC 681.3

PUTYATIN, Ye. P., PCHELINOV, V. P., PUTYATINA, G. M.

"Multicomponent Technical Systems for Analysis of Optical Information"

Probl. Bioniki. Resp. Mezhd. Nauchno-tekhn. Sb. [Problems of Bionics, Republic Interdepartmental Scientific and Technical Collection], No 4, 1970, pp 26-30, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V575 by the authors).

Translation: Problems of the design of multicomponent sensors for analysis of information on the spectral composition of radiation are studied. A three-component visual system is a particular case of such a system. A rigid decoding system including an analog-code convertor and decoder is suggested for recognition of information on radiation.

Power Systems

USSR

UDC: [621.3.016.352+519.2].001.24

VENIKOV, V. A. and PUTYATIN, Ye. V.

"Probability Approach to Determining the Dynamic Stability of Electrical Systems"

Moscow, Izvestiya Akademii nauk SSSR -- Energetika i transport, No 5, 1972, pp 9-21

Abstract: This article is evidently the continuation of an earlier paper by the first author named above (Perekhodnyye elektromekhanicheskiye protsessy v elektricheskikh sistemakh--Transient Electromechanical Processes in Electrical Systems--"Vysshaya shkola," 1970) in which it was found that a peculiarity of computations of modern electrical system operation modes is the need for taking into account the probable nature of the parameters and perturbations. In the present article, an analytical method is proposed for investigating the transient modes of electrical systems with random perturbations and random parameters. Here, perturbations are defined as massive emergency disturbances such as short circuits or generator breakdowns. The effect of variations in the parameters of an electrical system on the probability characteristics of the

1/2

USSR

621.3.016.352+519.2 .003.24.

VENIKOV, V. A., et al, Izvestiya Akademii nauk SSSR -- Energetika i transport, No 5, 1972, pp 9-21

transient processes is investigated, and it is shown that the behavior of a stochastically defined electrical system is approximately described by a combination of two equations for the mathematical expectation and centering of the quantities.

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- 95 -

USSR

UDC 51:155.001.57:681.3.06

PUTYATIN, Ye. P., BARANNIK, V. V., PUTYATINA, G. M., SHUL'GIN, I. V.

"Statistical Aspects of the Recognition of Color Shadings"

Probl. Bioniki. Resp. Mezhved. Nauchno-tekhn. Sb. [Problems of Bionics, Republic Interdepartmental Scientific and Technical Collection], No 4, 1970, pp 74-80, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V648 by the authors).

Translation: Statistical problems of recognition of color are studied, an algorithm of recognition is suggested, considering the probable thresholds of vision in three channels. The design of a device for recognition of color shadings is discussed.

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USSR

UDC 681.3

PUTYATIN, Ye. P., PCHELINOV, V. P., PUTYATINA, G. M.

"Multicomponent Technical Systems for Analysis of Optical Information"

Probl. Bioniki. Resp. Mezhved. Nauchno-tekhn. Sb. [Problems of Bionics, Republic Interdepartmental Scientific and Technical Collection], No 4, 1970, pp 26-30, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V575 by the authors).

Translation: Problems of the design of multicomponent sensors for analysis of information on the spectral composition of radiation are studied. A three-component visual system is a particular case of such a system. A rigid decoding system including an analog-code convertor and decoder is suggested for recognition of information on radiation.



1/2 015  
UNCLASSIFIED  
TITLE--PREPARATION OF DISPERSIONS OF INGREDIENTS FOR LATEX MIXTURES -U-  
PROCESSING DATE--30OCT70  
AUTHOR--(05)-MAZINA, G.R., MIROKHINA, G.A., PUTYATINA, Z.P., VDOVCHENKOVA,  
M.K., ABRAMOVA, YE.N.  
COUNTRY OF INFO--USSR  
SOURCE--KAUCH. REZINA 1970, 29(2), 19-21  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--LATEX, MICROSCOPE, BUTYL RUBBER, FILLER, SULFUR, ZINC  
COMPOUND, ROLLING MILL/(U)V200 VIBRATORY MILL, (U)MB16 MICROSCOPE,  
(U)GIPI LKP BEAD MILL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/0096  
STEP NO--UR/0138/70/029/002/0019/0021  
CIRC ACCESSION NO--AP0122362  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0122362

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. S, ZNO, ZN(S SUB2 CNET SUB2) SUB2, AND ZN(S SUB2 CNETPH) SUB2 DISPERSIONS WERE PREPD. IN A BEAD MILL GIPI-LKP (HAVING GLASS BEADS 0.63-1 MM IN DIAM.), A BIVRATORY MILL M-200, AND A BALL MILL, AND THE PARTICLES WERE EXAMD. UNDER A MBI-6 MICROSCOPE. SEDIMENTATION ANAL. INDICATED THAT THE DEGREE OF DISPERSION OF THE INGREDIENTS WAS IDENTICAL REGARDLESS OF THEMILL USED, BUT THE BEAM MILL WAS THE MOST PRODUCTIVE. BUTYL TUBBER FILMS FILLED WITH THE VARIOUS DISPERSIONS HAD SIMILAR PHYSICOMECH. PROPERTIES. FACILITY: NAUCH.-ISSLED. INST. REZIN. LAT. KSNYKH IZDELII, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.382.002

KHANSEN, E.A., HUSEPP, M.E., SAAR, B.YA.

"Some Problems Of A Decrease Of Heat In The Production Of Semiconductor Products"

Tr. Tallin. politekhn. in-ta (Works Of The Tallin Polytechnical Institute), 1970, A, No 291, pp 89-94 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B339)

Translation: The papers considers one of the components of the microclimate of a premises -- heat -- and the increase of its influence in the production of semiconductors with the use of planar technology. Based on an analysis of a number of experiments, several hypothesis are advanced with respect to a definition of heat sources, and an optimum arrangement is worked out for the technological processes at assembly sections. 5 ill. 6 ref. Summary.

1/1

USSR

UDC 621.35.035.2:669.22

ROSS, A. A., PUUSEPP, H. YA., LOODMAA, V. R., and NIKOL'SKIY, V. A.

"Influence of Some Impurities on the Anode Operation of Porous Silver Electrodes"

Sb. rabot no khim. istochnikam toka. Vses. n.-n akkumulyator. in-t  
(collection of works on the Chemical Source of Current. All-Union Scientific  
Study Institute for Storage Batteries), Vyp 7, 1972, pp 185-189 (from  
Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L243)

Translation: By plotting the galvanostatic curves of the discharge, it is possible to study the oxidation of silver electrodes in an alkaline environment for the introduction of different impurities into the electrode material or into the electrolyte solution. On the basis of values calculated from experimental data, the value of the coefficient of oxidation of silver and the displacements of the potential of the electrode at the beginning of the observed evolution of oxygen to the potential of the formation of AgO was determined. It was advantageous to use impurities to improve the electrical characteristics of the silver electrode. Compounds being considered for use as additional impurities include  $ZrO_2$ ,  $HfO_2$ ,  $Cr_2O_3$  and  $Fe_2O_3$ .

1/1

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USSR

UDC 547.26\*117:541.49

PUVOVIK, A. N., MURATOVA, A. A., MEDVEDEVA, M. D., and YAMALIYEVA, L. N.,  
Kazan State University imeni V. L. Ul'yanova-Lenina

"Study of the Reaction of Trialkyl Phosphites With Ten Alkyl Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2402-2407

Abstract: A study was made of the reaction triethyl-, tri-normal-propyl-, and tri-normal-butyl phosphites with the monoethyl-, diethyl-, and triethyl-halides of tin, having the general formula  $(C_2H_5)_n SnX_{4-n}$  for  $X = Cl, Br, I$  and  $n = 1, 2, 3$ . The reaction was followed by differential thermal analysis (DTA) in conjunction with simultaneous measurements of the electrical conductivity. Reactions were carried out in anhydrous pentane under dry  $CO_2$  at  $-10$  to  $-20^\circ C$ . Complexes of two types were formed:  $[(RO)_3P]_2 \cdot SnX_3C_2H_5$  and  $[(RO)_3P]_2 \cdot SnX_3C_2H_5$ . Both the temperature of the initiation of the thermal effect and the temperature of maximum thermal effect decreased in the order chlorine, bromine, and iodine. Both the reactivity and the acceptor strength decrease in the above order for  $SnX_4$  and  $C_2H_5SnCl_3$ ; however, the order is 1/2

USSR

PUVOVIK, A. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972,  
pp 2402-2407

reversed for the compounds  $(C_2H_5)_2SnCl_2$  and  $(C_2H_5)_3SnCl$ . The authors explain  
this difference as being due to different reaction mechanisms. IR data and  
NMR data using  $Cl^{35}$  are also given.

2/2

- 20 -

USSR

UDC: 621.396.69:621.318.1:549.731.1

PUZAKOV, A. P., STETSKO, K. V.

"Some Results of an Investigation of Hot-Pressed Ferrite Inserts in SHF Devices of High Power Level"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronic Technology. Scientific and Technical Collection. Ferrite Technology), 1970, vyp. 1 (23), pp 7-10 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V398)

Translation: Data are given from an experimental study of Y-circulators of high power level with ferrite inserts made by the standard oxide technique and the hot pressing method. It is shown that when the basic parameters inherent in devices with ordinary normalized ferrites are maintained, high levels of threshold power are reached in circulators with hot-pressed ferrite inserts made from a mechanically pulverized charge with subsequent oxygen annealing. Resumé.

1/1

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USSR

USSR  
Electrochemistry

UDC 621.357.13.035.2:661.879.1.22

PUZAKOV, V. V., BARABOSHNIKIN, A. N., and KALIYEV, K. A., and TARASOVA, K. P.

"Mechanism for the Growth Hemispherical Precipitates of Uranium Dioxide  
on the End of the Electrode"

Tr. In-ta elektrokhimii, Ural'sk. nauch. tsentr AN SSSR (Works of the  
Institute of Electrochemistry. Ural Scientific Center, Academy of Sciences,  
USSR), Vyp 18, 1972, pp 99-105 (from Referativnyi Zhurnal -- Khimiya, No  
8(II), 1973, Abstract No 8L346 V. V. Grinina)

Translation: The hypothesis mentioned earlier that hemispherical shape of  
precipitates of  $UO_2$  formed on the ends of Pt microcathode in  $LiCl-KCl-UO_2-Cl_2$   
melt at  $400^\circ$  was caused by a particular relationship of the specific elec-  
trical resistance of the cathode, the precipitate, and the melt. The specific  
and effective electrical resistances of the melt and the electrolytic  $UO_2$   
were compared as were the calculated and experimental forms of the precipitate  
on the end of the cathode. Measurements by electrical conductivity were  
carried out in an atmosphere of argon by the contact method, using a bridge  
to carry a current having a frequency of 5000 Hz from room temperature to  
 $600^\circ$ . The electrical conductivity of  $UO_2$  was measured directly in the melt,  
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USSR

PUZAKOV, V. V., et al., Tr. In-ta elektrokhimii. Ural'sk. nauch. tsentr  
AN SSSR, Vyp 18, 1972, pp 99-105

during the growth of the precipitate. A timed potentiometric method was used in the calculation of the electrical conductivity of the alloy to determine the diffusion coefficients of the uranyl ion in the pectic mixture LiCl-KCl. It was shown that the specific electrical conductivity of  $UO_2$  was half an order of magnitude smaller than the effective electrical conductivity and two orders of magnitude smaller than the specific electrical conductivity of the melt. The theoretically calculated value of the form of the precipitate was close to that observed experimentally. The precipitate had a hemispherical form.

2/2

- 1 -

PUZAKOVA, T. I.

COMPUTERS

SO: FOREIGN PRESS DIGEST  
31 AUGUST 1971

2. Machine Translation FPD 0029/91

56. USSR

UDC: 651.926:681.39

PUZAKOVA, T. I. and SHEVENKO, S. M.

"An Experiment in Hieroglyphic Translation of Japanese Patents into Russian and English"

Moscow, Avtomatiz. Obrabotki Yaponsk. Patentn. Dokumentatsii (Automated Processing of Japanese Patent Documentation), Vypusk 2 (Tr. TENIPI, ser. 3) (Works of the Central Scientific Research Institute of Patent Information and Technical-Economic Research, Series 3), 1970, pp 249-265 (from R-Zh -- Informatika, No 4, Apr 71, Abstract No 71.4.103 (71R-31))

Translation: This article describes an experiment in hieroglyphic translation of patents from the Japanese language into Russian and English (on the BESM-6). The translation is carried out with the help of a Japanese-Russian-English dictionary, consisting of 1,000 ideographs and their Russian and English equivalents. The dictionary is coded according to a specially developed method. A set of digits corresponds to each ideograph, eight are allotted to code the ideograph and five

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31 Aug 71

81

PPD: CYBERNETICS

USSR

PUZAKOVA, T. I., SHEVENKO, S. M., Avtomatiz. Obrabotki Yaponsk. Patentn. Dokumentatsii (Automated Processing of Japanese Patent Documentation), Vypusk 2 (Tr. TSNIPI, ser 3) 1970, pp 249-265 (from R-Zh -- Informatika, No 4, Apr 71, Abstract No 71.4.103 (71R-31))

address the translation of this ideograph. The large core storage of the MESM-6 makes it possible to store simultaneously: a Japanese dictionary, a Russian or English dictionary; a translation program; the text being translated, which may contain up to 3,000 words; and its Russian or English translation. Longer texts are translated piece by piece. In the case where a certain word of the input text is not a ideograph (katakana or hiragana) KHIRAG or KATAK is written in the translation. If the necessary word is not in the dictionary HETP is written in the translation in its place. Translations of the same ideograph that have different meanings are separated by the symbol  $\diamond$ , and synonyms are separated by the sign ; (a period and a comma). The operating scheme of the translation algorithm, a sample of a Japanese patent, and the computer's translations of it into Russian and English are given.

Oscillators and Modulators

USSR

UDC 621.373.43

PUZANENKO, V. I., STRIZHINYUK, V. P.

"A Slave Time-Interval Oscillator"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 8, Mar 71, Author's Certificate No 296240, division H, filed 25 Apr 69,  
published 12 Feb 71, p 186

Translation: This Author's Certificate introduces a slave time-interval oscillator which consists of n delay circuits and switching elements. As a distinguishing feature of the patent, the reliability of memorizing time intervals is increased by including two series-connected delay cells in each delay circuit. The outputs of the cells in each circuit being connected through OR and AND logic circuits to the corresponding input of a flip-flop whose outputs are connected to the inputs of the delay circuits.

USSR

UDC: None

BALASHOV, Ye. P., LAVRENT'YEV, B. F., PETROV, G. A., and PUZANKOV,  
D. V.

"Digital Computing Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovar-  
nyye znaki, No 9, 1973, p 165, No 168606

Abstract: This device contains a magnetic storage unit with a linear selector. The digital readout lines of the latter are connected to a counting amplifier, whose outputs are, in turn, connected to an AND shift. The distinctive feature of the device is that two delay circuits are contained in each digital circuit, with the inputs of each delay joined to the output of the counting amplifier output and the AND shift output for that digit. This arrangement has the effect of simplifying the structure of the device and increasing its operating speed.

1/1

USSR

UDC 621.317.799:538.569.4

AKVILONOVA, A. B., GORELIK, A. K., KALASHNIKOV, V. V., KRYLOVA,  
M. S., KUTUZA B. G., KUKHARSKAYA, N. F., MITNIK, L. M., PUZANOV,  
V. A., and FROLOV, Yu. A.

"Measuring the Full Absorption in a Cloudless Atmosphere in the  
0.55-0.59 Range"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.  
(Tenth All-Union Conference on the Propagation of Radio Waves;  
Report Theses--collection of works) "Nauka," 1972, pp 8-11 (from  
RZh--Radiotekhnika, No 10, 1972, Abstract No 10A422)

Translation: Experimental data is given on the full absorption of  
radio waves in a cloudless atmosphere in the 0.55-0.59 cm range,  
with simultaneous recording of vertical profiles for temperature,  
pressure, and humidity at the observation point. Resume

1/1

- 60 -

USSR

UDC: 621.317:621.396.62

PUZANOV, V. A.

"Investigation of a Radiometer for the 8-mm Band With Intermediate Frequency Microwave Amplifier"

Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-izmerit. apparatura (Electronic Technology. Scientific and Technical Collection. Monitoring and Measuring Equipment), 1970, vyp. 2(20), pp 59-71 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A417)

Translation: The author investigates the possibility of developing an 8-mm radiometer using a wide-band IF amplifier for the centimeter range and a converter based on an industrial mixer diode. The calculation and results of an experimental study of such a converter are presented. A laboratory radiometric installation gives a sensitivity of  $0.4 \text{ deg/s}^{0.5}$  when a 3-cm amplifier based on semiconductor parametric diodes with a 1000 MHz band is used as the IF amplifier. Resumé.

1/1

**AAC044790**

Soviet Inventions Illustrated, Section II Electrical, Derwent,

UR 0482

243259 MEASURING THE ADHESION OF PARTICLES to a prepared electrode by imposing a powerful electrical field is effective by loses accuracy if the exact breakaway point cannot be observed. The proposed design offers observation by making the electrode transparent. The diagram shows the upper transparent electrode 1 carrying a transparent conducting coating 2, on the lower surface of which are deposited the particles 12, of which the breakaway force is to be determined; these are distributed not less than 2-3 diameters apart. The lower electrode 6, in net form, is replaced, with ring 7, after inserting the particles,

2/70

AUTHORS: Myazdrikov, O. A.; Nikolayev, O. S.; Puzanov, V. N.; Bantikov, V. S.; Yekimova, N. F.  
Leningradskiy Institut Aviatsionnogo Priborostroyeniya

113

18

**19771610**



AA0044790

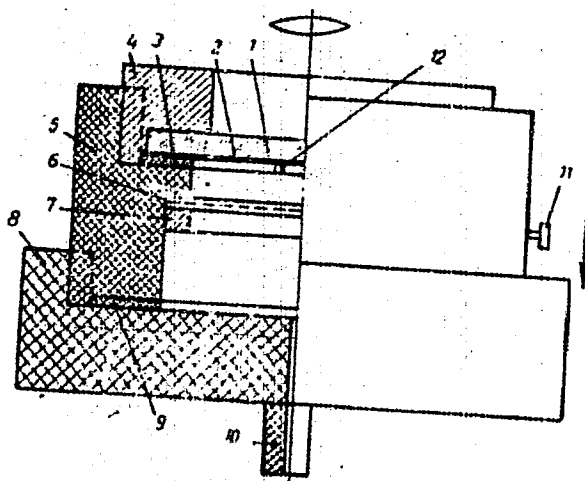
sealing cap 8 replaced and the cavity filled with some gas at required pressure via nipple 10. The assembly is then placed under the microscope and a high voltage applied between terminal 11 of 6, and 4. Under the microscope the largest particles are selected for observation and their mean diameter estimated. As the specification shows mathematically, the adhesion force is a function of the square of the breakaway voltage and, inversely, the particle mean radius. These functions are observed by microscope, hence the force can be calculated.

23.12.67 as 1205295/26-25.O.A.MYAZDRIKOV et al.  
(LENINGRAD) AVIATION INSTRUMENTATION INST.(23.9.69)  
Bul 16/5.5.69. Class 421. Int.Cl.G 01n.

2/3

19771611

AA0044790



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19771612

8c

PUZANOVA, O. G.

SO: JPRS 54396

03 NOV 71

METHODS

UDC 612.018.31:577.17.049/-087.4+613.27:577.17.049/-074  
DETERMINING MICROELEMENTS IN HUMAN FOOD RATIONS AND EXCRETA USING THE EXTRACTION METHOD

[Article by Ye. I. Pokrovskaya, O. G. Puzanova, (Moscow, U.S.S.R.)  
Kosmicheskaya Meditsina i Negizirovaniye, Vol. 5, No. 4, pp. 55-60, 1971,  
submitted for publication 23 January 1971]

Existing methods for the direct spectrographic and atomic-absorption determination of microelements in biological objects are not always satisfactory. In particular, the content of many microelements (nickel, vanadium, molybdenum, cobalt, tin) in the human ration and excreta is at the limit of sensitivity of these methods. A preliminary concentration of the sample leads to a simultaneous increase in the interfering effect from other substances. The latter makes it necessary to isolate traces of elements in an analysis of different biological samples.

Applicable to spectral methods, it is best to have a group isolation of the traces of elements. This can be done successfully using the reagent hexamethylene dithiocarbamate of hexamethylene ammonium (HMA) (N. N. Novikova, et al.). In contrast to the extensively used sodium diethyl dithiocarbamate this complex former is quite stable in acidic media (A. I. Busev, et al.). Mixtures of different reagents (A. K. Babko, et al.) are used in the total isolation and concentration of metals in a number of cases.

In order to increase the effectiveness of extraction one can also use a mixture of organic diluents having a different nature (F. M. Tuluyeva, et al.). In this study we used a mixture of HMA reagents and 2-oxyethanol (OC), as well as a mixture of solvents, chloroform and isooctyl (isobutyl) alcohol.

In perfecting the method we studied the effect of the ratios of reagents, temperature, and inorganic base on the degree of extraction of microelements as a function of medium pH. The initial working medium was an artificial solution simulating the approximate composition of mineralized urine. We used mixtures of chloroform and isooctyl alcohol in the ratios 1:0, 1:1, 1:2, 3:1, as well as chloroform and isobutyl alcohol in the ratio 3:1. The

Chemistry